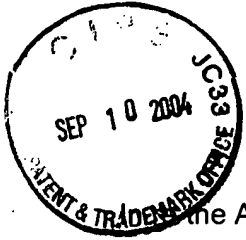


JFW

Docket No. 1572.1177



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

the Application of:

Sung-soo JUNG, et al.

Serial No. 10/739,220

Group Art Unit: To Be Assigned

Confirmation No. 8476

Filed: December 19, 2003

Examiner: To Be Assigned

For: PROJECTION TELEVISION

PETITION TO THE COMMISSIONER

Mail Stop Missing Parts  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

On July 27, 2004, a Notice of Incomplete Nonprovisional Application was mailed by the U.S. Patent & Trademark Office for the above-identified application, a copy of which is enclosed. In the Notice, it was asserted that a filing date of December 19, 2003 was not accorded to the above-identified application since the application was deposited without drawings. The Notice also stated that a newly executed oath or declaration covering the items must also be submitted.

However, as indicated in the enclosed date stamped Postcard, the Office of Initial Patent Examination received a New Application Fee Transmittal Form, a Utility Patent Application Transmittal, a Utility Patent Application including Specification (12 pages), Claims (3 pages), Abstract (1 page), ten (10) sheets of drawings (FIGS. 1-10), an executed Declaration/Power of Attorney, an executed Assignment with a PTO-1595 Form coversheet, an Information Disclosure Statement with five (5) references, a certified priority document and a check for \$896.00. A copy of all the papers filed is enclosed for your reference.

In the enclosed Postcard including the serial number, there is no indication that any parts were missing.

As such, it is respectfully submitted that the Applicants have shown the drawings compliant with 35 U.S.C. §113 were filed at the United States Patent and Trademark Office on December 19, 2003, and that the filing date of December 19, 2003 should be accorded the instant application. Additionally, no newly executed oath or declaration is enclosed, as this

Serial No. 10/739,220

Docket No. 1572.1177

Petition also asserts that the original Declaration filed with the application covers the drawings as originally submitted with the application filed on December 19, 2003.

Also enclosed is the petition fee of \$130.00 set forth in 37 C.F.R. §1.17(h). Should the Office agree to accord the instant application the December 19, 2003 filing date, a request for a refund of the petition fee is respectfully requested as set forth in the enclosed Notice.

If any further fees are required in connection with the filing of this Petition, please charge the same to our deposit account number 19-3935.

Should any questions remain unresolved, the Examiner is requested to telephone Applicant's attorney.

Respectfully submitted,  
STAAS & HALSEYLLP



Michael D. Stein  
Registration No. 37,240

Date: 9/10/04

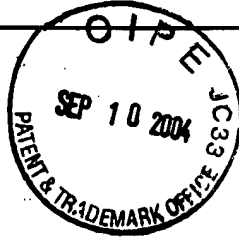
1201 New York Avenue, N.W., Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500

Please Date Stamp and return

NEW U.S. PATENT APPLICATION INCLUDING: NEW APPLICATION TRANSMITTAL; NEW APPLICATION FEE TRANSMITTAL; SPECIFICATION, CLAIMS AND ABSTRACT (16 PAGES), 10 PAGES OF DRAWINGS (FIGS. 1-10); EXECUTED DECLARATION/POWER OF ATTORNEY; ASSIGNMENT COVERSHEET WITH ASSIGNMENT ATTACHED; INFORMATION DISCLOSURE STATEMENT WITH 5 REFERENCES; SUBMISSION OF CERTIFIED PRIORITY DOCUMENT AND CHECK FOR \$896.00

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APPLICANT(S): Sung-soo JUNG, et al.  
SERIAL NO: Unassigned  
CONFIRMATION NO. Unassigned  
TITLE: PROJECTION TELEVISION  
FILING DATE: December 19, 2003  
DOCKET NO: 1572.1177/MDS:fc  
DUE DATE: DECEMBER 23, 2003



17510 U.S. PTO  
10/739220

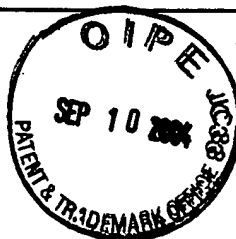


Please Date Stamp and return

NEW U.S. PATENT APPLICATION INCLUDING: NEW APPLICATION TRANSMITTAL; NEW APPLICATION FEE TRANSMITTAL; SPECIFICATION, CLAIMS AND ABSTRACT (16 PAGES), 10 PAGES OF DRAWINGS (FIGS. 1-10); EXECUTED DECLARATION/POWER OF ATTORNEY; ASSIGNMENT COVERSHEET WITH ASSIGNMENT ATTACHED; INFORMATION DISCLOSURE STATEMENT WITH 5 REFERENCES; SUBMISSION OF CERTIFIED PRIORITY DOCUMENT AND CHECK FOR \$896.00

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FILING DATE: December 19, 2003  
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DUE DATE: DECEMBER 23, 2003



34



NEW APPLICATION FEE TRANSMITTAL		Attorney Docket No.	1572.1177
		Application Number	Unassigned
		Filing Date	December 19, 2003
AMOUNT ENCLOSED	\$ 896.00	First Named Inventor	Sung-soo JUNG, et al.

## FEE CALCULATION (fees effective 10/01/03)

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
TOTAL CLAIMS		13 - 20 =	0	X \$ 18.00 =	\$ 0.00
INDEPENDENT CLAIMS		4 - 3 =	1	X \$ 86.00 =	86.00
MULTIPLE DEPENDENT CLAIMS (any number; if applicable)				+ \$290.00 =	
				BASIC FILING FEE	770.00
				Total of above Calculations =	\$ 856.00
Surcharge for late filing fee, Oath or Declaration (37 CFR 1.53(f)) (\$130.00)					
Reduction by 50% for filing by small entity (37 CFR 1.27).					
				TOTAL FILING FEE =	\$ 856.00
Surcharge for filing non-English language application (\$130.00; 37 CFR 1.52(d))					
				Recordation of Assignment (\$40.00; 37 CFR 1.21(h))	40.00
				TOTAL FEES DUE =	\$ 896.00

## METHOD OF PAYMENT

- Check enclosed as payment.
- Charge "TOTAL FEES DUE" to the Deposit Account No. below.
- No payment is enclosed and no charges to the Deposit Account are authorized at this time (unless specifically required to obtain a filing date).

## GENERAL AUTHORIZATION

- If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to:

Deposit Account No.

19-3935

Deposit Account Name

STAAS &amp; HALSEY LLP

- The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.53(b) and/or continuations/divisionals/CPAs under 37 CFR 1.53(d)) to maintain pendency hereof or of any such related application.

SUBMITTED BY: STAAS &amp; HALSEY LLP

Typed Name	Michael D. Stein	Reg. No.	37,240
Signature		Date	December 19, 2003

**UTILITY  
PATENT APPLICATION**

Attorney Docket No. 1572.1177

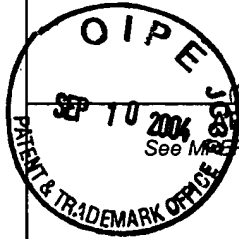
First Named Inventor or Application Identifier:  
Sung-soo JUNG, et al.

TRANSMITTAL

Express Mail Label No.

Only for original applications)  
**APPLICATION ELEMENTS**  
See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:  
**Commissioner for Patents  
Box Patent Application  
PO Box 1450  
Alexandria, VA 22313-1450**



1.  Fee Transmittal Form
2.  Specification, Claims & Abstract .....[Total Pages: 16 ]
3.  Drawing(s) (35 USC 113) .....[ Total Sheets: 10 ] [FIGS. 1-10 ]
4.  Oath or Declaration .....[ Total Pages: 2 ]
  - a.  Newly executed (original or copy)
  - b.  Copy from a prior application (37 CFR 1.63(d))
    - i.  **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5.  Verified Statement Claiming Small Entity Status
6.  Application Data Sheet. See 37 C.F.R. 1.76
7.  Applicant claims foreign priority benefit to: Korean Application 2002-82448 filed December 23, 2002
8.  CD-Rom or CD-R in duplicate, large table or Computer Program (Appendix)
9.  Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
  - a.  Computer Readable Form (CRF)
  - b.  Specification Sequence Listing on:
    - i.  CD-ROM or CD-R (2 copies); or
    - ii.  paper
  - c.  Statement verifying identity of above copies
10.  For publication of assignee information under 37 CFR 1.215(b), list the assignee as Samsung Electronics Co., Ltd. of Suwon-si, Republic of Korea. The Assignment papers will be filed later.

**ACCOMPANYING APPLICATION PARTS**

11.  Assignment (cover sheet & document(s)) to Samsung Electronics Co., Ltd. of Suwon-si, Republic of Korea  
 for publication of assignee information under 37 CFR 1.215(b)
12.  37 CFR 3.73(b) Statement (when there is an assignee)  Power of Attorney
13.  English Translation Document (if applicable)
14.  Information Disclosure Statement (IDS)/PTO-1449  Copies of IDS Citations
15.  Preliminary Amendment
16.  Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
17.  Certified Copy of Priority Document(s) (if foreign priority is claimed)
18.  Request and Certification for Nonpublication under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent
19.  Other:

**20. CORRESPONDENCE ADDRESS**



21171

PATENT TRADEMARK OFFICE



TITLE OF THE INVENTION

PROJECTION TELEVISION

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of Korean Patent Application No. 2002-082448, filed December 23, 2002, in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates to a projection television having a plurality of cathode ray tubes (CRTs) disposed beside a screen, through which image beams are projected, and a plurality of CRT brackets supporting the plurality of CRTs.

Description of the Related Art

[0003] Generally, a projection television has employed a method of rear projection, wherein images are projected on the backside of the screen.

[0004] With the use of the rear projection method, a small-sized image formed on an inner device for projection in the projection television is enlarged on the backside of a large screen through a projection lens, whereby a large picture can be displayed.

**[0005]** In the conventional projection television, a cathode ray tube (CRT), a liquid crystal display (LCD), a digital micro-mirror device (DMD), etc., have been used as a device for projection, so as to supply small images.

**[0006]** Among these projection devices, the CRT has been widely used because it can form pictures from a variety of video sources at a comparatively low price.

**[0007]** Here, the CRT refers to a monochromatic CRT covered with a unicolored fluorescent film in any one of red (R), green (G) or blue (B).

**[0008]** In the projection television employing the CRT, an incidence angle of each CRT, outputting one color of R, G or B, is adapted so that an image is projected on a large screen through a reflector in order to enlarge the picture.

**[0009]** A conventional projection television, as shown in FIGS. 1 and 2, comprises a front casing 1, a rear casing, a speaker 3, a screen 4, a reflector 5, a plurality of CRTs 6, a printed circuit board (PCB) 7, and a controller 8.

**[0010]** The CRTs 6 are provided in three, disposed horizontally in parallel below the screen 4, through which R, G and B are respectively output in monochrome. Generally, the CRTs 6 used as a projection device create typically a picture of 7 to 9 inches.

**[0011]** The picture formed in the CRT 6 generally takes the form of a rectangle, wherein the horizontal edge is longer than the vertical edge. That is, the width has commonly a long side whereas the length has a short side.



[0012] The image beam projected in the CRTs 6 is projected with a degree of angle as designated on the reflector 6 disposed with inclination on the backside of the screen 4.

[0013] The reflector 5 remains inclined as designated so that the image beam projected from the CRTs 6 disposed below the screen 4 can be reflected on the screen 4. For this purpose, it is preferable that the reflector 5 is first vertically disposed, and thereafter, the top end of the reflector 5 is forwardly inclined toward the screen and then the lower end of the reflector 5 is rearwardly inclined to the contrary.

[0014] However, the conventional projection television has the following problems.

[0015] First, since the CRTs have been disposed below the screen, a space to dispose the CRTs below the screen has been required. For this reason, the lower part of the front casing has been enlarged in height and the whole dimension of the projection television has been enlarged accordingly.

[0016] Second, when the CRT has been horizontally disposed, the picture has been overall lengthened. For this reason, there has been a serious distortion in focus.

[0017] Third, the image beams from the plurality of CRTs have varied in the angle of projection, in order to solve the second problem. However, in this case, there has been no satisfactory means for maintaining the designated degree of angle of the plurality of CRTs in a stable manner.

[0018] Fourth, since the CRT has been disposed in the same space with the PCB, the heat and electromagnetic waves generated from both the CRT and the PCB have caused a mutual functional problem between them.

[0019] Fifth, since the tilting degree of angle between the screen and the CRT has been large, this has required a large amount of adaptation for convergence, thereby having caused power loss and generation of a large amount of heat.

#### SUMMARY OF THE INVENTION

[0020] Accordingly, it is an aspect of the present invention to provide a projection television wherein the whole dimension of the projection television is reduced, distortion in focus is prevented, the degree of angle between the CRTs and forward and rearward disposition thereof remain stable, and a functional problem due to electromagnetic waves is prevented.

[0021] Additional aspects and advantages of the invention will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the invention.

[0022] The foregoing and/or other aspects of the present invention are achieved by providing a projection television, comprising: a screen onto which an image beam is projected; a reflector inclinedly disposed on the backside of the screen; a plurality of CRTs disposed on the side of the screen, projecting the image beam toward the reflector; and a plurality of CRT brackets including a body part, CRT inserting parts projecting from the body part and a refrigerant

inserting hole formed on one side of the CRT inserting part, and supporting the plurality of CRTs.

**[0023]** According to an aspect of the invention, the plurality of CRT brackets are formed in an integrated unit.

**[0024]** According to another aspect of the invention, the plurality of CRT brackets are constructed like stairs so that they are inclined in response to the degree of angle for projection of the image beam from the plurality of CRTs.

**[0025]** According to another aspect of the invention, the plurality of CRT brackets are made of a conductive metallic material so as to interrupt EMI.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0026]** These and/or other aspects and advantages of the present invention will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompany drawings of which:

**[0027]** FIG. 1 is a perspective view of a conventional projection television;

**[0028]** FIG. 2 is an exploded view of a projection television according to FIG. 1;

**[0029]** FIG. 3 is a perspective view of a CRT bracket used with a projection television according to an embodiment of the present invention;

**[0030]** FIG. 4 is a front elevational view of the CRT bracket according to FIG. 3;

- [0031] FIG. 5 is a left side view of the CRT bracket according to FIG. 3;
- [0032] FIG. 6 is a right side view of the CRT bracket according to FIG. 3;
- [0033] FIG. 7 is a perspective view showing an insertion of a CRT into the CRT bracket according to FIG. 3;
- [0034] FIG. 8 is a right side view of the CRT bracket and the CRT according to FIG. 7;
- [0035] FIG. 9 is a front elevational view showing a disposition of the CRT in the projection television according to an embodiment of the present invention, which is partially projected; and
- [0036] FIG. 10 is a cross-section view of the projection television according to FIG. 9.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0037] Reference will now be made in detail to the embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout. The embodiments are described below in order to explain the present invention by referring to the figures.

[0038] Referring to FIGS. 3 through 9, a projection television according to an embodiment of the present invention comprises a front casing 10, a rear casing 20, a speaker 30, a screen 40, a reflector 50, a plurality of CRTs 60 and a plurality of CRT brackets 70.

[0039] The front casing 10 is provided to thereby constitute the front part of the projection television. The front casing 10 includes an upper part on which the screen 40 is seated, and a

lower part 13 positioned below the screen, having a controller 15 controlling the projection television.

[0040] The CRTs 60, as illustrated in FIG. 9, are disposed beside the screen 40. Thus, the lower part 13 of the front casing can be reduced in height.

[0041] The rear casing 20 corresponds in shape to the front casing 10. The front casing 10 and the rear casing 20 accommodate therein the speaker 30, the screen 40, the reflector 50, the CRTs 60 and the CRT brackets, among other components functioning as a shield to protect them from external forces.

[0042] As shown in FIG. 9, it is preferable that the speaker 40 is provided on the left side and the right side of the screen 40, respectively.

[0043] The screen 40 is disposed around the center of the upper part 11 of the front casing 10. An image is created with an image beam projected onto the backside of the screen 40, and a viewer can watch the image through the front part of the screen 40.

[0044] The reflector 50 (FIG. 10) is inclinedly disposed at the rear of the screen 40. The reflector 50 of the projection television retains the degree of inclination so that the image beams projected from the CRTs 60 disposed beside the screen 40 are reflected on the screen 40. In an aspect of the invention, the reflector 50 is almost vertically positioned, and then either of the left or right sides thereof is forwardly sloped toward the screen 40 and the other side of the reflector 50 is rearwardly sloped to the contrary.

**[0045]** FIG. 10 shows an embodiment of the present invention wherein the CRTs 60 are positioned in the right side of the screen 40, and shows an optical passage through which the image beams projected in the CRTs 60 are reflected by the reflector 50 and then projected onto the backside of the screen 40.

**[0046]** The CRTs 60 of the projection television according to an embodiment of the present invention employ the same CRTs as used in a conventional projection television. However, three CRTs according to the present invention are disposed vertically in order to solve the problem of distortion in force having been caused in the conventional projection television wherein the three CRTs have been disposed horizontally. Also, in the projection television according to the embodiments of the present invention, it is possible to dispose the CRTs 60 horizontally on the side of the screen 40.

**[0047]** The CRTs 60 can be positioned on either side of the screen 40. There is no separate space required to mount them since a space inherently provided on both sides of the screen 40 to mount the speaker 30 can be utilized.

**[0048]** FIG. 9 is a front elevational view showing a disposition of the CRT in the projection television according to an embodiment of the present invention, which is partially projected. From this figure, another embodiment of the present invention, wherein the three CRTs 60 vertically stacked on the side of the screen 40, is demonstrated.

**[0049]** Referring to FIGS. 4 and 9, the CRTs 60 are constructed to be disposed vertically by stacking the plurality of CRTs vertically. Since the CRTs 60 are arranged in a different space

from the PCB (not shown) provided in the inner bottom of the lower part 13 of the front casing 10, a functional problem due to heat generation from them can be prevented.

**[0050]** The CRT brackets 70 each includes a body part 100, a CRT inserting part 200 and a refrigerant inserting hole 300.

**[0051]** The body part 100 of the CRT bracket 70 is formed of a material strong enough to support the CRT 60.

**[0052]** The CRT inserting part 200 is projected from the body part 100, supportedly accommodating the CRT 60.

**[0053]** The refrigerant inserting hole 300 is formed on one side of the CRT inserting part 200, through which a refrigerant can be inserted. The refrigerant inserted into the refrigerant inserting hole 300 cools off components of the CRT 60 generating heat, thereby serving to minimize a functional problem of the CRTs 60 due to the heat generated.

**[0054]** The CRT brackets 70 are provided in plural so as to respectively support a plurality of CRTs 60. A plurality of CRT brackets 70 are preferably formed in an integrated unit. If the CRT brackets 70 are integrally made, there is no need to combine the respective CRT brackets 70 through a separate process. Also, the CRT brackets 70 can be completely closed.

**[0055]** Preferably, the plurality of CRT brackets 70 are shaped like stairs so that they are inclined to correspond with the angle of projection of the image beams from the plurality of CRTs 60.

**[0056]** The CRTs 60 in the projection television according to an embodiment of the present invention are provided in three so as to output the monochromatic color of red (R), green (G) or blue (B), and the CRTs are vertically disposed.

**[0057]** The image beams projected in the CRTs 60 are reflected on the reflector 50 having a width as designated, and are then projected on the screen 40. Therefore, it is preferable that the remaining CRTs 60 over and below the CRT 60 in the center are sloped toward the center, with the degree of angle as designated.

**[0058]** It is to be noted that visible rays refer to those having wave lengths in the region of the electromagnetic spectrum perceptible to human vision, among the electromagnetic waves. The modification of properties according to wave length within the visible rays is indicated by their proper colors.

**[0059]** In a case of the wave length of a monochromatic light, red is in the range of 700 to 610nm, green is in the range of 570 to 500nm, and blue is in the range of 500 to 450nm.

**[0060]** Considering the vertical disposition of the plurality of CRTs 60 and the difference in wave length, it is preferable that the CRT brackets 70 according to the present invention are shaped like stairs.

**[0061]** It is to be noted that most electric and electronic apparatuses use electric energy to generate electro-magnetic interference (EMI) to some degree, and this EMI likely brings about a malfunction in operation of the electric and electronic apparatuses or computer systems.



[0062] Thus, the CRT brackets 70 according to the present invention are preferably made of a metallic material having a conductivity.

[0063] By making the CRT brackets 70 of a metallic material having a conductivity, discharging of the EMI generated by the CRTs 60 to the outside is prevented, and also the discharging of the EMI generated from the outside into the CRT 60 can be prevented.

[0064] With this configuration, it is possible to lower the whole length of the projection television, secure the close combination of the CRTs, maintain the degree of angle or front and rear disposition of the CRTs and prevent functional problems due to electromagnetic waves.

[0065] As described above, the present invention can supply the following as well as other advantages.

[0066] In an aspect of the invention, the whole length of the projection television is lowered since the CRTs are disposed on the side of the screen.

[0067] In another aspect of the invention, the close combination of CRTs is secured by forming the CRT brackets in an integrated unit.

[0068] In yet another aspect of the invention, the degree of angle appropriate in disposing the plurality of CRTs and forward and rearward disposition thereof can be securely maintained because the CRT brackets are formed like stairs.

[0069] In still another aspect of the invention, a functional problem due to electromagnetic waves can be prevented because the CRT brackets are constructed so as to interrupt the EMI.

**[0070]** In still another aspect of the invention, mutual functional troubles due to heat generation between the CRT and the PCB can be prevented because they are disposed in different spaces.

**[0071]** Although a few embodiments of the present invention have been shown and described, it will be appreciated by those skilled in the art that changes may be made in these embodiments without departing from the principles and spirit of the invention, the scope of which is defined in the appended claims and their equivalents.

CLAIMS:

What is claimed is:

1. A projection television, comprising:  
a screen onto which an image beam is projected;  
a reflector inclinedly disposed at the backside of the screen;  
a plurality of CRTs disposed at a side of the screen, projecting the image beam toward the reflector; and  
a plurality of CRT brackets including a body part, CRT inserting parts projecting from the body part and a refrigerant inserting hole formed on one side of the CRT inserting part, and supporting the plurality of CRTs.
2. The projection television according to claim 1, wherein the plurality of CRT brackets are formed in an integrated unit.
3. The projection television according to claim 1, wherein the plurality of CRT brackets are inclined in response to the degree of angle for projection of the image beam from the plurality of CRTs.
4. The projection television according to claim 2, wherein the plurality of CRT brackets are inclined in response to the degree of angle for projection of the image beam from the plurality of CRTs.

5. The projection television according to claim 1, wherein the plurality of CRT brackets are made of a conductive material to interrupt EMI.

6. A projection television, comprising:  
a screen onto which an image beam is projected;  
a reflector positioned at the backside of the screen vertically positioned with one of the left or right side of the reflector sloped toward the screen while the other of the left or right side of the reflector is sloped away from the screen;  
a plurality of CRTs positioned at the side of the screen in which the reflector is sloped away from the screen to project the image beam toward the reflector; and  
a plurality of CRT brackets each including a body part, a CRT inserting part projected from the body part and a refrigerant inserting hole formed on one side of the CRT inserting part, and supporting the plurality of CRTs.

7. The projection television according to claim 6, wherein the CRTs are positioned vertically.

8. The projection television according to claim 6, wherein the CRTs are positioned horizontally.

9. The projection television according to claim 6, wherein the plurality of CRTs brackets are of one integral unit in a stepped formation with respect to each other.

10. A projection television having a screen, a reflector, and a printed circuit board (PCB), the projection television comprising:

a plurality of CRTs to project the image beam toward the reflector; and

a plurality of CRT brackets integrally formed to support the CRTs, the CRT brackets being disposed at a predetermined distance from the PCB to prevent electromagnetic interference generated by the CRTs from affecting the PCB.

11. The projection television according to claim 10, wherein the plurality of CRT brackets are integrally formed to be shaped like stairs so that they are inclined to correspond with the angle of projection of the image beams from the plurality of CRTs.

12. The projection television according to claim 10, wherein the plurality of CRT brackets are made of a conductive material to interrupt EMI.

13. A projection television having a screen, a reflector, and a printed circuit board (PCB), the projection television comprising a plurality of CRTs to project the image beam toward the reflector, wherein the CRTs are positioned on the side of the screen.

ABSTRACT

A projection television having a screen onto which an image beam is projected; a reflector inclinedly disposed at the backside of the screen; a plurality of CRTs disposed at the side of the screen, projecting the image beam toward the reflector; and a plurality of CRT brackets including a body part, CRT inserting parts projecting from the body part and a refrigerant inserting hole formed on one side of the CRT inserting part, and supporting the plurality of CRTs. With this configuration, the present invention provides a projection television wherein the whole dimension of the projection television is reduced, distortion in focus is prevented, the degree of angle between the CRTs and forward and rearward disposition thereof remain stable, and a functional problem due to electromagnetic waves is prevented.



1 / 10  
FIG. 1  
(PRIOR ART)

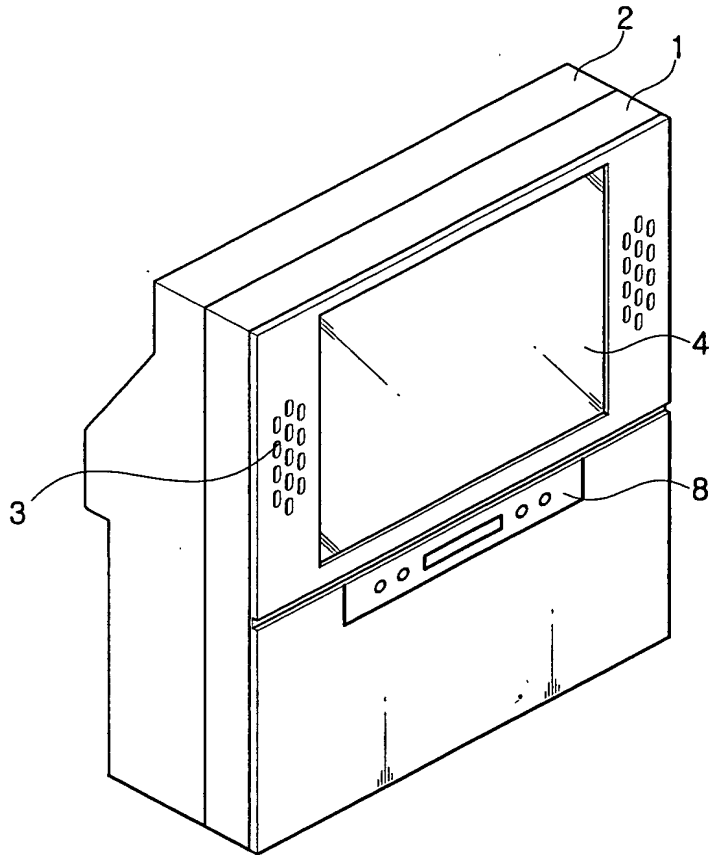
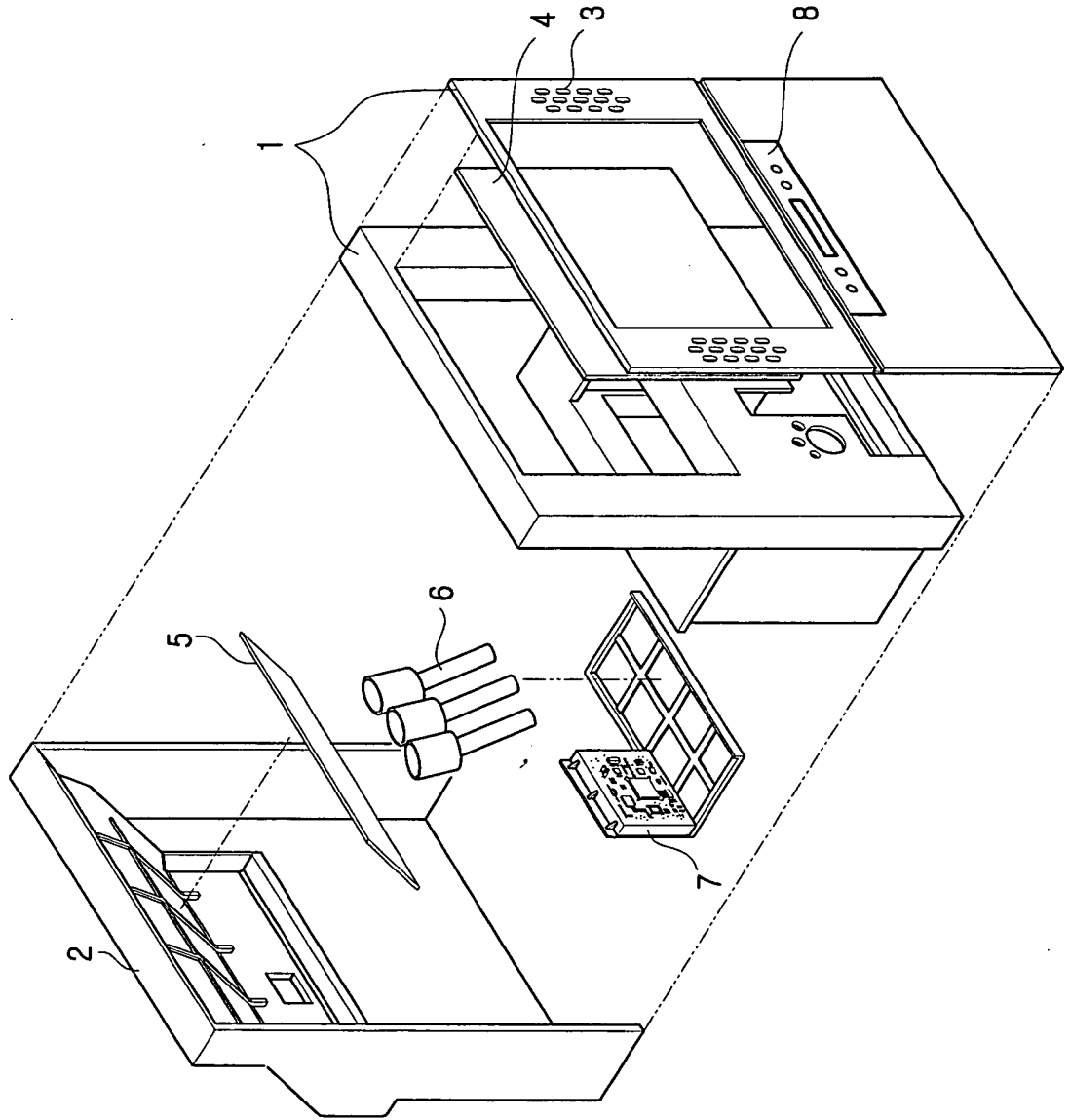


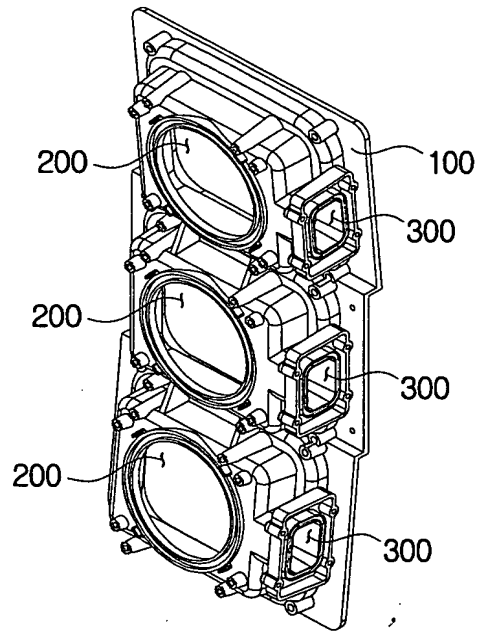
FIG. 2  
(PRIOR ART)





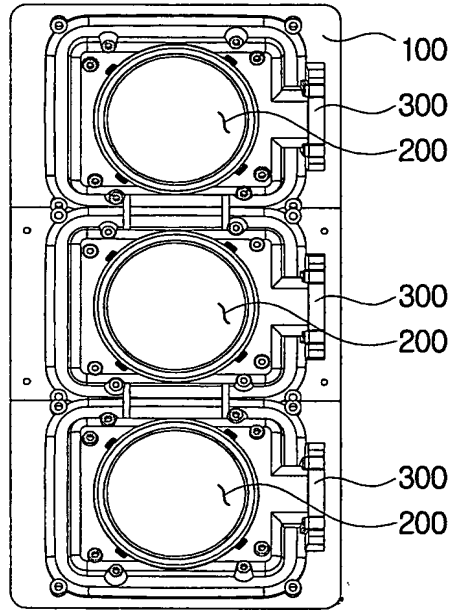
3 / 10  
FIG. 3

70

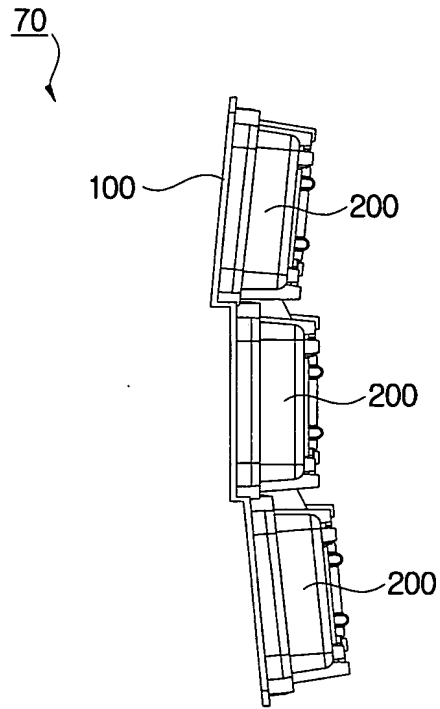


4 / 10  
FIG. 4

70

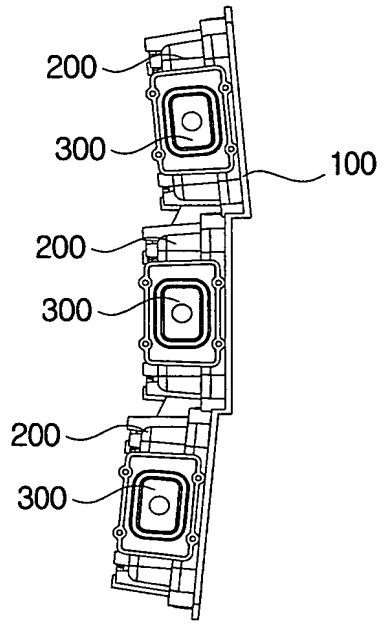


5 / 10  
FIG. 5

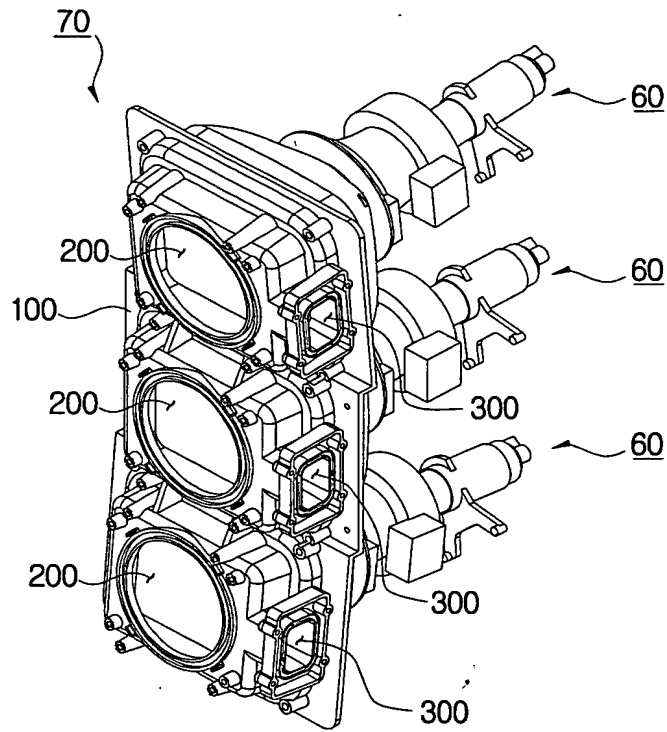


6 / 10  
FIG. 6

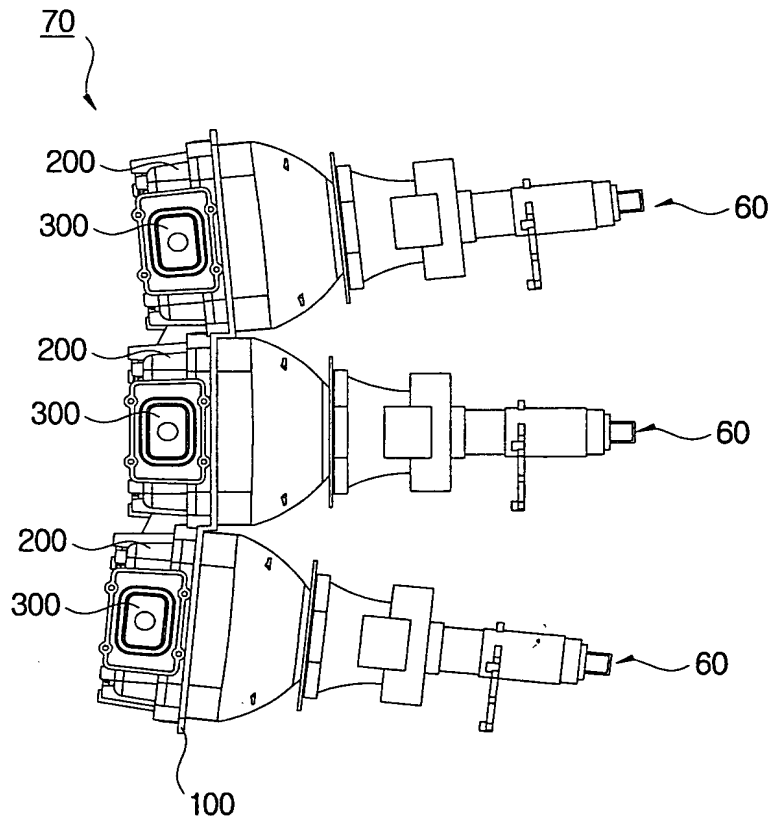
70



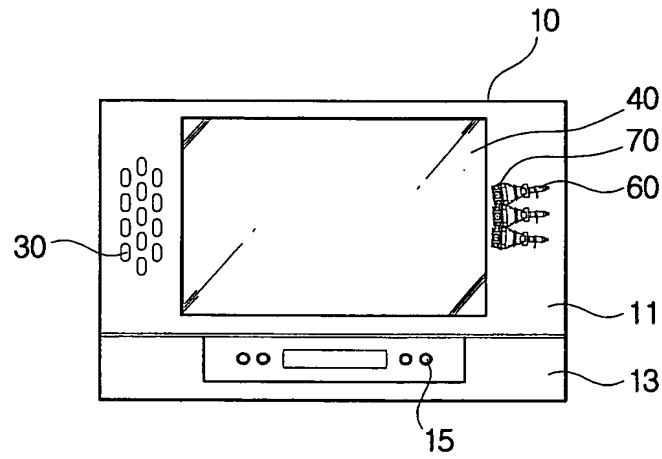
7 / 10  
FIG. 7



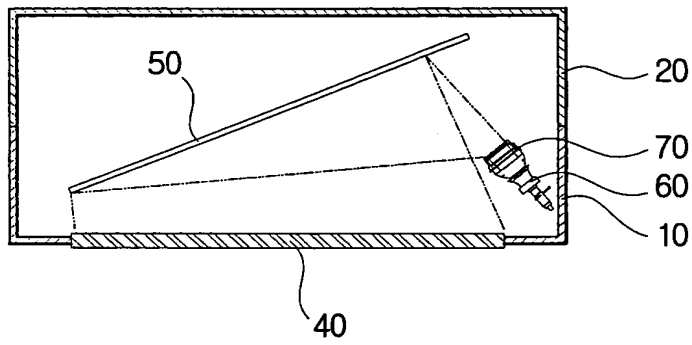
8 / 10  
FIG. 8



9 / 10  
FIG. 9



10 / 10  
FIG. 10





COMBINED DECLARATION/POWER OF ATTORNEY FOR UTILITY/DESIGN PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PROJECTION TELEVISION

the specification of which is attached hereto, unless the following box is checked:

[ ] was filed on \_\_\_\_\_ as United States Application Number or PCT International Application Number Unassigned and was amended on (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby claim foreign priority benefit(s) under 35 U.S.C. § 119(a)-(d) or § 365(a)-(c) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority NOT Claimed

Table with 4 columns: Application Number, Country, Filing Date, Priority Claimed. Row 1: 2002-82448, Republic of Korea, 23/December/2002, [ ]

I hereby claim the benefit under 35 U.S.C. § 120 or § 119(e) of any United States application(s), or § 365(c) of any PCT International application designating the United States; listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Table with 3 columns: Application Serial No., Filing Date, Status. Row 1: (Application Serial No.), (Filing Date), (Status -- patented, pending, abandoned)

I hereby appoint the attorneys and agents of Staas & Halsey LLP under USPTO Customer No. 21,171 to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:



21171 PATENT TRADEMARK OFFICE

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor Sung-soo JUNG

Inventor's Signature Sung-soo JUNG Date 19/Sep/2002

Residence Hwasung-kun, Korea Citizenship Republic of Korea

Mailing Address Hanshin Apt. #110-706, Pyungjum-ri, Taaen-eup, Hwasung-kun, Kyungki-do, Korea

Full name of second inventor Young-bok KIM

Inventor's Signature Young-bok KIM Date 19/ Sep / 2003  
Residence Suwon city, Korea Citizenship Republic of Korea  
Mailing Address Woonam First Vill #201-1001, 1274, Maetan-dong, Paldal-ku, Suwon city, Kyungki-do, Korea

Full name of third inventor Kyoung-youn LEE

Inventor's Signature Kyoung-Youn LEE Date 19/ Sep / 2003  
Residence Suwon city, Korea Citizenship Republic of Korea  
Mailing Address Jugong Apt. #133-2002, 955-1, Youngtong-dong, Paldal-ku, Suwon city, Kyungki-do, Korea

Full name of fourth inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
Mailing Address \_\_\_\_\_

Full name of fifth inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
Mailing Address \_\_\_\_\_

Full name of sixth inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
Mailing Address \_\_\_\_\_

Full name of seventh inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
Mailing Address \_\_\_\_\_

Full name of eighth inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
Mailing Address \_\_\_\_\_

Full name of ninth inventor \_\_\_\_\_

Inventor's Signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
Mailing Address \_\_\_\_\_

Patent and Trademark Office

PATENTS ONLY

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To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):  
Sung-soo JUNG  
Young-bok KIM  
Kyoung-youn LEE



2. Name and Address of receiving party(ies):  
  
SAMSUNG ELECTRONICS CO., LTD.  
416, Maetan-Dong, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, Republic of Korea

3. Nature of conveyance:  
X Assignment \_\_\_\_\_ Merger  
\_\_\_\_\_ Security Agreement \_\_\_\_\_ Change of Name  
\_\_\_\_\_ Other: \_\_\_\_\_  
Execution Date(s): September 19, 2003

4. Application number(s) or patent number(s):  
 This document is being filed together with a new application:  
(a) The execution date(s) of the application is/are: September 19, 2003  
(b) The title is: PROJECTION TELEVISION  
OR  
 This document is being filed after filing of the application:  
(a) Patent Application No(s).    /   , filed   ; or  
(b) Patent No(s).   , issued   

5. Name and address of party to whom correspondence concerning document should be mailed:  
STAAS & HALSEY LLP Our Docket: 1572.1177  
Attention: Michael D. Stein  
1201 New York Ave., N.W., Suite 700  
Washington, D.C. 20005

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41)..... (\$ 40.00 per Assignment)  
X Enclosed  
\_\_\_\_\_ Authorized to be charged to deposit account.

8. Deposit Account No.: 19-3935 (Any underpayment is authorized to be charged to this Deposit Account)  
(Attach duplicate copy of this page if paying by deposit account)

9. Statement and signature.  
*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*

Michael D. Stein, Reg. No. 37,240  
Name of Person Signing

Signature

December 19, 2003  
Date

Total number of pages including cover sheet: 2

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# U.S. ASSIGNMENT

SAH 1/00

IN CONSIDERATION of the sum of One Dollar (\$1.00), and of other good and valuable consideration paid to the undersigned inventor(s) (hereinafter, "ASSIGNOR") by  
(Insert Name(s) & Address(es) of ASSIGNEE(S))

SAMSUNG ELECTRONICS CO., LTD.  
416, Maetan-dong, Paldal-ku  
Suwon city, Kyungki-do  
Republic of Korea

(hereinafter, "ASSIGNEE"), the receipt of which is hereby acknowledged, the undersigned ASSIGNOR hereby sells, assigns and transfers to ASSIGNEE the entire and exclusive right, title and interest to the invention entitled  
(Title of Invention)

## PROJECTION TELEVISION

relating to International Patent Application PCT/JP / \_\_\_\_\_ and/or for which application for Letters Patent of the United States was executed on even date herewith or, if not so executed, was:

(a) executed on \_\_\_\_\_; (Insert date of execution of application, if not concurrent )

(b) filed on \_\_\_\_\_;

Serial No. \_\_\_\_\_/ \_\_\_\_\_;

Any registered attorney of STAAS & HALSEY LLP, 700 Eleventh Street, N.W., Washington, D.C. 20001 (202/434- 1500) is hereby authorized to insert in (b) the specified data, when known.

and to said application and all Letters Patent(s) of the United States granted on said application and any continuation, division, renewal, substitute, reissue or reexamination application based thereon, for the full term or terms for which the said Letters Patent(s) may be granted and including any extensions thereof (collectively, hereinafter, "said application(s) and Letters Patent(s)").

The ASSIGNOR agree(s), when requested by said ASSIGNEE and without charge to but at the expense of said ASSIGNEE, to do all acts which the ASSIGNEE may deem necessary, desirable or expedient, for securing, maintaining and enforcing protection for said invention, including in the preparation and prosecution of said application(s) and the issuance of said Letters Patent(s), in any interference, reissue, reexamination, or public use proceeding, and in any litigation or other legal proceeding which may arise or be declared in relation to same, such acts to include but not be limited to executing all papers, including separate assignments and declarations, taking all rightful oaths, providing sworn testimony, and obtaining and producing evidence.

IN WITNESS WHEREOF, the undersigned inventor(s) has (have) affixed his/her/their signature(s).

(Typed Name & Signature of Inventor(s))

(Date)

(Typed Name & Signature of Witness(es))

- 1) Sung-soo JUNG      SEP. 19, 2003      \_\_\_\_\_  
Sung-soo JUNG
- 2) Young-bok KIM      SEP. 19, 2003      \_\_\_\_\_  
Young-bok KIM
- 3) Kyoung-youn LEE      SEP. 19, 2003      \_\_\_\_\_  
Kyoung-youn LEE
- 4) \_\_\_\_\_

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Sung-soo JUNG, et al.

Application No.: Unassigned

Filed: December 19, 2003

For: PROJECTION TELEVISION



Group Art Unit: Unassigned

Examiner: Unassigned

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure provisions of 37 CFR § 1.56, there is hereby provided certain information which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the subject application.

1. Enclosures accompanying this Information Disclosure Statement are:

- 1a.  Form PTO-1449.
- 1b.  Copies of IDS citations.
- 1c.  An English language copy of search report(s) from a counterpart foreign application or a PCT International Search Report.
- 1d.  English language translation (Abstract Only) attached to some of the non-English language publications.
- 1e.  Explanations of Relevancy of References (ATTACHMENT 1(e), hereto) for providing a concise explanation of one of non-English publications.
- 1f.  List of Copending Applications (ATTACHMENT 1(f), hereto).
- 1g.  List of Additional Submitted Documents (ATTACHMENT 1(g), hereto).

2.  This Information Disclosure Statement is filed under 37 CFR §1.97(b):

*(Check either Item 2a or 2b or 2c or 2d)*

- 2a.  Within three months of the filing date of a national application other than a Continued Prosecution Application under § 1.53(d);
- 2b.  Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application.
- 2c.  Before the mailing of a first Office Action on the merits; or
- 2d.  Before the mailing of a first Office Action after the filing of a Request for Continued Examination under § 1.114.

3.  This Information Disclosure Statement is filed under 37 CFR §1.97(c) after the period specified in paragraph 2 above but before the mailing date of any of a Final Office Action under § 1.113, a Notice of Allowance under § 1.311 or an action that otherwise closes prosecution in the application, AND
- (Check either Item 3a or 3b; Item 3b to be checked if any reference known for more than 3 months)*
- 3a.  The § 1.97(e) Statement in Item 5 below is applicable; OR
- 3b.  The \$180.00 fee set forth in 37 C.F.R. §1.17(p) is:
- enclosed.
- to be charged to Deposit Account No. 19-3935.
4.  This Information Disclosure Statement is filed under 37 CFR §1.97(d) after the period specified in paragraph 3 above, but on or before payment of the Issue Fee, AND
- 4a.  The § 1.97(e) Statement in Item 5 below is applicable; AND
- 4b.  The \$180.00 fee set forth in 37 C.F.R. §1.17(p) is:
- enclosed.
- to be charged to Deposit Account No. 19-3935.
5.  Statement under § 1.97(e) (*applicable if Item 3a or Item 4 is checked*)
- (Check either Item 5a or 5b)*
- 5a.  In accordance with 37 CFR §1.97(e)(1), it is stated that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
- 5b.  In accordance with 37 CFR §1.97(e)(2), it is stated that no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known by any individual designated in §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.
6.  This is a continuation/divisional/continuation-in-part application under 37 CFR § 1.53(b).
- (Check appropriate Items 6a and/or 6b)*
- 6a.  Copies of the publications listed on the attached Form PTO-1449 which were previously cited in prior application Serial No. \_\_\_, filed on \_\_\_, and which is relied on for an earlier effective filing date for the subject application under 35 U.S.C. § 120, have been omitted pursuant to 37 CFR § 1.98(d).
- 6b.  Copies of the publications listed on the attached Form PTO-1449 which were not previously cited in prior application Serial No. \_\_\_, filed on \_\_\_, and which is relied on for an earlier effective filing date for the subject application under 35 U.S.C. § 120, are provided herewith.


7.  This is a continuation/divisional application under 37 CFR § 1.53(d) or Request for Continued Examination under 37 CFR 1.114.  
*(Check either Item 7a or 7b)*
- 7a.  The Issue Fee has not been paid.
- 7b.  A Petition to Withdraw from issue under 37 CFR §1.313(c) is filed concurrently herewith or has been granted. A continuation application under 37 CFR § 1.53(d) or Request for Continued Examination under 37 CFR 1.114, after payment of the Issue Fee is proper in accordance with 37 CFR § 1.53(d)(1)(ii) or 37 CFR 1.114(a), respectively.
8.  This is a Supplemental Information Disclosure Statement.  
*(Check either Item 8a or 8b)*
- 8a.  This Supplemental Information Disclosure Statement under 37 CFR § 1.97(f) supplements the Information Disclosure Statement filed on \_\_\_. A bona fide attempt was made to comply with 37 CFR § 1.98, but inadvertent omissions were made. These omissions have been corrected herein. Accordingly, additional time is requested so that this Supplemental IDS can be considered as if properly filed on \_\_\_.
- 8b.  This Supplemental Information Disclosure Statement is timely filed within one (1) month of the Notice under 37 CFR § 1.97 and 1.98, mailed \_\_\_. (MPEP 609 C(1), Form & 6.49, Rev. 1, Feb. 2000, pp. 600-107)
9.  In accordance with 37 CFR § 1.98, a concise explanation of what is presently understood to be the relevance of each non-English language publication is:  
*(Check appropriate Items 9a, 9b, 9c and/or 9d)*
- 9a.  satisfied because all non-English language publications were cited on the enclosed English language copy of the PCT International Search Report or the search report from a counterpart foreign application indicating the degree of relevance found by the foreign office. (See U.S. Patent & Trademark Office's authorization in the Federal Register, Vol. 57, No. 12, January 17, 1992, at page 2031 (Reply to Comment 68).)
- 9b.  set forth in the application.
- 9c.  satisfied because an English language translation (Abstract Only) is attached to some of the non-English language publications.
- 9d.  enclosed as Attachment 1(e), hereto.
10. No admission is made that the information cited in this Statement is, or is considered to be, material to patentability nor a representation that a search has been made (other than search report(s) from a counterpart foreign application or a PCT International Search Report, if submitted herewith). 37 CFR §§ 1.97(g) and (h).

11. The Commissioner is authorized to credit any overpayment or charge any additional fee required under 37 CFR § 1.17 for this Information Disclosure Statement and/or Petition to Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Dated: 12/19/03  
1201 New York Avenue, N.W.  
Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501

By:   
Michael D. Stein  
Registration No. 37,240



FORM PTO-1449

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTORNEY DOCKET NO.

1572.1177

APPLICATION NO.

Unassigned

**LIST OF REFERENCES CITED BY APPLICANT**

(Use several sheets if necessary)

FIRST NAMED INVENTOR

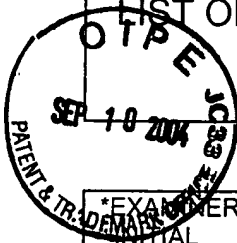
Sung-soo JUNG, et al.

FILING DATE

December 19, 2003

GROUP ART UNIT

Unassigned



**U.S. PATENT DOCUMENTS**

*EXAMINER INITIAL	DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
AA						
AB						
AC						
AD						
AE						
AF						

**FOREIGN PATENT DOCUMENTS**

	DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION	
						YES	NO
AG	59-27685	02/14/84	Japan				X
AH	59-231987	12/26/84	Japan			Abstract	
AI	2-37895	02/07/90	Japan			Abstract	
AJ	6-303647	10/28/94	Japan			Abstract	
AK	2-92282	07/23/90	Japan			Abstract	
AL							

**OTHER REFERENCES** (Including Author, Title, Date, Pertinent Pages, Etc.)

AM	
AN	

EXAMINER	DATE CONSIDERED
----------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

**ATTACHMENT 1(e)**

<b>EXPLANATIONS OF RELEVANCY OF REFERENCES</b>	ATTORNEY DOCKET NO.	APPLICATION NO.
	1572.1177	Unassigned
	FIRST NAMED INVENTOR	
	Sung-soo JUNG, et al.	
	FILING DATE	GROUP ART UNIT
	December 19, 2003	Unassigned

Reference AG, Japanese Publication No. 59-27685, published February 14, 1984 is generally related to a Projection Television

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Sung-soo JUNG, et al.

Application No.: Unassigned

Group Art Unit: Unassigned

Filed: December 19, 2003

Examiner: Unassigned



PROJECTION TELEVISION

**SUBMISSION OF CERTIFIED COPY OF PRIOR FOREIGN  
APPLICATION IN ACCORDANCE  
WITH THE REQUIREMENTS OF 37 C.F.R. § 1.55**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 1.55, the applicant(s) submit(s) herewith a certified copy of the following foreign application:

Korean Patent Application No(s). 2002-82448

Filed: December 23, 2002

It is respectfully requested that the applicant(s) be given the benefit of the foreign filing date(s) as evidenced by the certified papers attached hereto, in accordance with the requirements of 35 U.S.C. § 119.

Respectfully submitted,

STAAS & HALSEY LLP

By: 

Michael D. Stein  
Registration No. 37,240

Date: December 19, 2003

1201 New York Ave, N.W., Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501

대한민국 특허청  
KOREAN INTELLECTUAL  
PROPERTY OFFICE

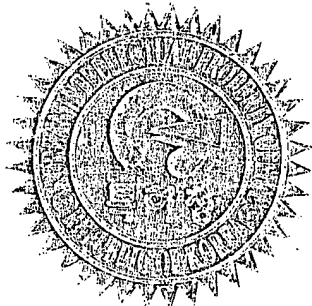
별첨 사본은 아래 출원의 원본과 동일함을 증명함.

This is to certify that the following application annexed hereto is a true copy from the records of the Korean Intellectual Property Office.

출원번호 : 10-2002-0082448  
Application Number PATENT-2002-0082448

출원년월일 : 2002년 12월 23일  
Date of Application DEC 23, 2002

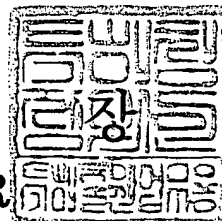
출원인 : 삼성전자 주식회사  
Applicant(s) SAMSUNG ELECTRONICS CO., LTD.



2003 년 01 월 13 일

특 허 청

COMMISSIONER



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